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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/739,587	12/15/2000	Terence S. Dowling	07844-476001 / P440	3536

21876 7590 09/25/2003

FISH & RICHARDSON P.C.  
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REDWOOD CITY, CA 94063

EXAMINER

MCCARTNEY, LINZY T

ART UNIT

PAPER NUMBER

2671

DATE MAILED: 09/25/2003

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10/EXR'S  
Amdt.  
B.

**Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)**  
(application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 395 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 395 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) system (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (703) 305-1383. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at (703) 305-8283.

Docketed By Practice Systems
Action Code: <u>FILE CON/DIV</u>
Base Date: <u>9-25-03</u>
Due Date: <u>11-25-03</u>
Deadline: <u>12-25-03</u>
Initials: <u>TJA</u>
Record: _____

Docketed By Practice Systems
Action Code: <u>1545 FEE PA</u>
Base Date: <u>9-25-03</u>
Due Date: <u>11-25-03</u>
Deadline: <u>12-25-03</u>
Initials: <u>TJA</u>
Record: _____

PETITION  
DEADLINE

Docketed By Billing Secretary
Due Date: <u>11/25/03</u>
Deadline: <u>12/25/03</u>
Initials: <u>g</u>

Docketed By Billing Secretary
Due Date: <u>11/25/03</u>
Deadline: <u>12/25/03</u>
Initials: <u>g</u>



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21876	7590	09/25/2003	EXAMINER	
FISH & RICHARDSON P.C. 500 ARGUELLO STREET SUITE 500 REDWOOD CITY, CA 94063			MCCARTNEY, LINZY T	
			ART UNIT	PAPER NUMBER
			2671	
DATE MAILED: 09/25/2003				

## Notice of Fee Increase on October 1, 2003

If a reply to a "Notice of Allowance and Fee(s) Due" is filed in the Office on or after October 1, 2003, then the amount due will be higher than that set forth in the "Notice of Allowance and Fee(s) Due" since there will be an increase in fees effective on October 1, 2003. See Revision of Patent Fees for Fiscal Year 2004; Final Rule, 68 Fed. Reg. 41532, 41533, 41534 (July 14, 2003).

The current fee schedule is accessible from (<http://www.uspto.gov/main/howtofees.htm>).

If the fee paid is the amount shown on the "Notice of Allowance and Fee(s) Due" but not the correct amount in view of the fee increase, a "Notice of Pay Balance of Issue Fee" will be mailed to applicant. In order to avoid processing delays associated with mailing of a "Notice of Pay Balance of Issue Fee," if the response to the Notice of Allowance is to be filed on or after October 1, 2003 (or mailed with a certificate of mailing on or after October 1, 2003), the issue fee paid should be the fee that is required at the time the fee is paid. If the issue fee was previously paid, and the response to the "Notice of Allowance and Fee(s) Due" includes a request to apply a previously-paid issue fee to the issue fee now due, then the difference between the issue fee amount at the time the response is filed and the previously-paid issue fee should be paid. See Manual of Patent Examining Procedure, Section 1308.01 (Eighth Edition, August 2001).

Effective October 1, 2003, 37 CFR 1.18 is amended by revising paragraphs (a) through (c) to read as set forth below.

Section 1.18 Patent post allowance (including issue) fees.

- (a) Issue fee for issuing each original or reissue patent, except a design or plant patent:
- By a small entity (Sec. 1.27(a))..... \$665.00
  - By other than a small entity..... \$1,330.00
- (b) Issue fee for issuing a design patent:
- By a small entity (Sec. 1.27(a))..... \$240.00
  - By other than a small entity..... \$480.00
- (c) Issue fee for issuing a plant patent:
- By a small entity (Sec. 1.27(a))..... \$320.00
  - By other than a small entity..... \$640.00

Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at (703) 305-8283.

# **PART B - FEE(S) TRANSMITTAL**

**Complete and send this form, together with applicable fee(s), to: Mail Mail Stop ISSUE FEE  
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or Fax (703) 746-4000**

**INSTRUCTIONS:** This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 4 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

**CURRENT CORRESPONDENCE ADDRESS** (Note: Legibly mark-up with any corrections or use Block 1)

21876 7590 09/25/2003

**FISH & RICHARDSON P.C.**  
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REDWOOD CITY, CA 94063

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

## **Certificate of Mailing or Transmission**

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/739,587	12/15/2000	Terence S. Dowling	07844-476001 / P440	3536

**TITLE OF INVENTION:** HINTED STEM PLACEMENT ON HIGH-RESOLUTION PIXEL GRID

APPLN. TYPE	SMALL ENTITY	ISSUE FEE	PUBLICATION FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	<del>\$330</del> <b>\$1330</b>	\$0	<del>\$330</del> <b>\$1330</b>	12/26/2003

EXAMINER	ART UNIT	CLASS-SUBCLASS
MCCARTNEY, LINZY T	2671	345-469000

**1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).**

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. Use of a Customer Number is required.

**2. For printing on the patent front page, list (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.**

1	_____
2	_____
3	_____

**3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)**

**PLEASE NOTE:** Unless an assignee is identified below, no assignee data will appear on the patent. Inclusion of assignee data is only appropriate when an assignment has been previously submitted to the USPTO or is being submitted under separate cover. Completion of this form is NOT a substitute for filing an assignment.

**(A) NAME OF ASSIGNEE**

**(B) RESIDENCE: (CITY and STATE OR COUNTRY)**

Please check the appropriate assignee category or categories (will not be printed on the patent); ☐ individual ☐ corporation or other private group entity ☐ government

**4a. The following fee(s) are enclosed:**

- ☐ Issue Fee
- ☐ Publication Fee
- ☐ Advance Order - # of Copies \_\_\_\_\_

**4b. Payment of Fee(s):**

- ☐ A check in the amount of the fee(s) is enclosed.
- ☐ Payment by credit card. Form PTO-2038 is attached.
- ☐ The Director is hereby authorized by charge the required fee(s), or credit any overpayment, to Deposit Account Number \_\_\_\_\_ (enclose an extra copy of this form).

Director for Patents is requested to apply the Issue Fee and Publication Fee (if any) or to re-apply any previously paid issue fee to the application identified above.

(Authorized Signature)

(Date)

**NOTE:** The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, Alexandria, Virginia 22313-1450. **DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, Alexandria, Virginia 22313-1450.**

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## NOTICE OF ALLOWANCE AND FEE(S) DUE

21876 7590 09/25/2003

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REDWOOD CITY, CA 94063

EXAMINER

MCCARTNEY, LINZY T

ART UNIT

CLASS-SUBCLASS

2671

345-469000

DATE MAILED: 09/25/2003

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/739,587	12/15/2000	Terence S. Dowling	07844-476001 / P440	3536

TITLE OF INVENTION: HINTED STEM PLACEMENT ON HIGH-RESOLUTION PIXEL GRID

APPLN. TYPE	SMALL ENTITY	ISSUE FEE	PUBLICATION FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1300	\$0	\$1300	12/26/2003

**THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.**

**THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE REFLECTS A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE APPLIED IN THIS APPLICATION. THE PTOL-85B (OR AN EQUIVALENT) MUST BE RETURNED WITHIN THIS PERIOD EVEN IF NO FEE IS DUE OR THE APPLICATION WILL BE REGARDED AS ABANDONED.**

### HOW TO REPLY TO THIS NOTICE:

#### I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status is changed, pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above and notify the United States Patent and Trademark Office of the change in status, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check the box below and enclose the PUBLICATION FEE and 1/2 the ISSUE FEE shown above.

☐ Applicant claims SMALL ENTITY status.  
See 37 CFR 1.27.

II. PART B - FEE(S) TRANSMITTAL should be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). Even if the fee(s) have already been paid, Part B - Fee(s) Transmittal should be completed and returned. If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

**IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.**

# Notice of Allowability

Application No.

09/739,587

Examiner

Linzy McCartney

Applicant(s)

DOWLING ET AL.

Art Unit

2671

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 22 September 2003.
2. ☒ The allowed claim(s) is/are 1-10, 12-25, 27-43, and 46-50.
3. ☒ The drawings filed on 15 December 2000 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All b) ☐ Some\* c) ☐ None of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
  - \* Certified copies not received: \_\_\_\_\_.
5. ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
  - (a) ☐ The translation of the foreign language provisional application has been received.
6. ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application. **THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

7. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
8. ☐ CORRECTED DRAWINGS must be submitted.
  - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
    - 1) ☐ hereto or 2) ☐ to Paper No. \_\_\_\_\_.
  - (b) ☐ including changes required by the proposed drawing correction filed \_\_\_\_\_, which has been approved by the Examiner.
  - (c) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No. \_\_\_\_\_.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet.

9. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

## Attachment(s)

- |  |  |
|--|--|
| 1 <input type="checkbox"/> Notice of References Cited (PTO-892)  | 2 <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3 <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                    | 4 <input checked="" type="checkbox"/> Interview Summary (PTO-413), Paper No. <u>10</u> |
| 5 <input type="checkbox"/> Information Disclosure Statements (PTO-1449), Paper No. _____               | 6 <input checked="" type="checkbox"/> Examiner's Amendment/Comment                     |
| 7 <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit of Biological Material | 8 <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance    |
|  | 9 <input type="checkbox"/> Other   |

Art Unit: 2671

**EXAMINER'S AMENDMENT**

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Brenda Leeds Binder on 10 September 2003.

The application has been amended as follows:

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1. (Currently Amended) A system for rendering a character for display in grayscale on a grayscale output device, comprising:

means for defining a coarse grid of cells, each coarse cell corresponding to an output device grayscale pixel, and a high-resolution grid of fine cells, the high-resolution grid being aligned with said coarse grid so that each coarse cell includes an integer number of undivided fine cells, the grids defining edges of the cells;

means for placing a character defined by a font program with reference to the coarse grid and fine grid, the character having a stem hinted with two parallel edges that are placed with reference to the grids when the character is so placed, the stem hint edges being separated by a stem width; and

stem aligner means for processing the stem before rendering the character for output on the output device, the stem aligner means comprising means for performing a black-edge hinted stem placement policy, ~~wherein the black-edge policy considers stem width when determining stem placement including,~~

means for rounding the stem width to the width of an integral number of fine cells;

means for determining the stem width; and

means for, if the stem width is at least one coarse grid cell, moving the stem with rounded width a minimum distance so that at least one of the stem hint edges aligns with a

parallel coarse cell edge.

2. (Original) The system of claim 1, wherein:

the number of fine cells per coarse cell is determined according to the number of grayscale levels that can be produced by a pixel of the output device.

3. (Original) The system of claim 1, wherein:

the number of fine cells per coarse cell is determined by a single, client-selected grid ratio.

4. (Original) The system of claim 1, wherein:

the stem aligner means further comprises means for performing an unbiased-stems hinted stem placement policy.

5. (Currently Amended) The system of claim 4, wherein:

~~the means for performing a black edge policy comprise:~~

~~means for rounding the stem width to the width of an integral number of fine cells; and~~

~~means for determining the stem width; and~~

~~means for, if the stem width is at least one coarse grid cell, moving the stem with rounded width a minimum distance so that at least one of the stem hint edges aligns with a parallel coarse cell edge; and~~

the means for performing an unbiased-stems policy comprise:

means for rounding the stem width to the width of an integral number of fine cells;

means for determining a minimum number of coarse cells that can be spanned by the rounded width of the stem; and

means for determining whether the stem spans more than the minimum number of coarse cells and, if it does, for moving the stem a minimum distance so that at least one of the stem hint edges aligns with a parallel coarse cell edge.

6. (Previously presented) A system for rendering a character for display in grayscale on a



grayscale output device, comprising:

means for defining a coarse grid of cells, each coarse cell corresponding to an output device grayscale pixel, and a high-resolution grid of fine cells, the high-resolution grid being aligned with said coarse grid so that each coarse cell includes an integer number of undivided fine cells;

means for placing a character defined by a font program with reference to the coarse grid and fine grid, the character having a stem hinted with two parallel edges that is placed with reference to the grids when the character is so placed, the stem hint edges being separated by a stem width; and

stem aligner means for processing the stem before rendering the character for output on the output device, ~~the stem aligner means comprising means for performing an unbiased-stems~~ hinted stem placement policy, wherein the unbiased-stems policy considers stem spread when determining stem placement.

7. (Original) The system of claim 6, wherein:

the number of fine cells per coarse cell is determined by a single, client-selected grid ratio.

8. (Original) The system of claim 6, wherein:

the number of fine cells per coarse cell is determined according to the number of grayscale levels that can be produced by a pixel of the output device.

9. (Original) The system of claim 6, wherein:

the stem aligner means further comprises means for performing a black-edge hinted stem placement policy.

10. (Currently Amended) A method for processing a stem of a character outline, comprising:

selecting a hinted stem placement policy from a set of policies comprising at least either a black-edge policy or an unbiased-stems policy, where a black edge policy considers stem width when determining stem placement and an unbiased-stems policy considers stem spread when determining stem placement;

placing a character defined by a font program with reference to a coarse grid and an overlapping fine grid, the character having a stem hinted with two parallel edges that is placed with reference to the grids when the character is so placed, the stem hint edges being separated by a stem width; and

processing the stem before rendering the character for output on the output device in accordance with the selected policy,

wherein, processing the stem in accordance with the black-edge policy includes:

rounding the stem width to the width of an integral number of fine cells;

determining the stem width; and

if the stem width is at least one coarse cell, moving the stem with rounded width a minimum distance so that at least one of the stem edges aligns with a parallel coarse cell edge.

11. (Cancel) The method of claim 10, further comprising processing the stem in accordance with a black-edge policy by:

~~rounding the stem width to the width of an integral number of fine cells; and~~

~~determining the stem width; and~~

~~if the stem width is at least one coarse cell, moving the stem with rounded width a minimum distance so that at least one of the stem edges aligns with a parallel coarse cell edge.~~

12. (Original) The method of claim 10, further comprising processing the stem in accordance with a unbiased-stems policy by:

rounding the stem width to the width of an integral number of fine cells;

determining a minimum number of coarse cells that can be spanned by the rounded width of the stem; and

determining whether the stem spans more than the minimum number of coarse cells and, if it does, for moving the stem a minimum distance so that at least one of the stem edges aligns with a parallel coarse cell edge.

13. (Original) The method of claim 10, wherein the set of policies comprises both a black-edge policy and an unbiased-stems policy.

14. (Original) The method of claim 13, wherein the set of policies further comprises a hard-edge policy and a soft-edge policy.

15. (Original) The method of claim 10, wherein the policy is specifically selected for vertical stems or horizontal stems.

16. (Original) The method of claim 10, wherein the policy is selected for both vertical stems and horizontal stems.

17. (Original) The method of claim 10, further comprising:

selecting a first policy for vertical stems and a different second policy for horizontal stems.

---

18. (Currently Amended) A computer program product, tangibly stored on a computer-readable medium, for rendering a character for display in grayscale on a grayscale output device, the product comprising instructions operable to cause a programmable processor to:

define a coarse grid of cells, each coarse cell corresponding to an output device grayscale pixel, and a high-resolution grid of fine cells, the high-resolution grid being aligned with said coarse grid so that each coarse cell includes an integer number of undivided fine cells, the grids defining edges of the cells;

place a character defined by a font program with reference to the coarse grid and fine grid, the character having a stem hinted with two parallel edges that are placed with reference to the grids when the character is so placed, the stem hint edges being separated by a stem width; and

perform a black-edge hinted stem placement policy, ~~where the black-edge policy considers stem width when determining stem placement, wherein instructions to perform a black-edge hinted stem placement policy comprise instructions to:~~

round the stem width to the width of an integral number of fine cells; and

determine the stem width; and

if the stem width is at least one coarse cell, move the stem with rounded width a minimum distance so that at least one of the stem hint edges aligns with a parallel coarse cell

19. (Original) The product of claim 18, wherein:

the number of fine cells per coarse cell is determined according to the number of grayscale levels that can be produced by a pixel of the output device.

20. (Original) The product of claim 18, wherein:

the number of fine cells per coarse cell is determined by a single, client-selected grid ratio.

21. (Original) The product of claim 18, further comprising instructions to:

perform an unbiased-stems hinted stem placement policy.

22. (Currently Amended) The product of claim 18, wherein:

~~the instructions to perform a black-edge policy comprise instructions to:~~

~~round the stem width to the width of an integral number of fine cells; and~~

~~determine the stem width; and~~

~~if the stem width is at least one coarse cell, move the stem with rounded width a minimum distance so that at least one of the stem hint edges aligns with a parallel coarse cell edge;~~

~~if the stem width is less than one coarse cell, perform an unbiased stems policy;~~

and

the instructions to perform an unbiased-stems policy comprise instructions to:

round the stem width to the width of an integral number of fine cells;

determine a minimum number of coarse cells that can be spanned by the rounded width of the stem; and

determine whether the stem spans more than the minimum number of coarse cells and, if it does, move the stem a minimum distance so that at least one of the stem hint edges aligns with a parallel coarse cell edge.

23. (Previously Presented) A computer program product, tangibly stored on a

computer-readable medium, for rendering a character for display in grayscale on a grayscale

output device, the product comprising instructions operable to cause a programmable processor to:

define a coarse grid of cells, each coarse cell corresponding to an output device grayscale pixel, and a high-resolution grid of fine cells, the high-resolution grid being aligned with said coarse grid so that each coarse cell includes an integer number of undivided fine cells, the grids defining edges of the cells;

place a character defined by a font program with reference to the coarse grid and fine grid, the character having a stem hinted with two parallel edges that are placed with reference to the grids when the character is so placed, the stem hint edges being separated by a stem width; and

perform an unbiased-stems hinted stem placement policy, wherein the unbiased-stems policy considers stem spread when determining stem placement.

24. (Original) The product of claim 23, further comprising instructions to:

perform a black-edge hinted stem placement policy.

25. (Currently Amended) A computer program product, tangibly stored on a computer-readable medium, for processing a stem of a character outline, the product comprising instructions operable to cause a programmable processor to:

select a hinted stem placement policy from a set of policies comprising at least either a black-edge policy or an unbiased-stems policy, where a black-edge policy considers stem width when determining stem placement and an unbiased-stems policy considers stem spread when determining stem placement;

place a character defined by a font program with reference to a coarse grid and an overlapping fine grid, the character having a stem hinted with two parallel edges that is placed with reference to the grids when the character is so placed, the stem hint edges being separated by a stem width; and

process the stem before rendering the character for output on the output device in accordance with the selected policy,

wherein, instructions to process the stem in accordance with a black-edge policy, include

instructions to:

round the stem width to the width of an integral number of fine cells;

determine the stem width; and

if the stem width is at least one coarse cell, move the stem with rounded width a minimum distance so that at least one of the stem edges aligns with a parallel coarse cell edge.

26. (Cancel) ~~The product of claim 25, further comprising instructions to:~~

~~— process the stem in accordance with a black-edge policy, including instructions to:~~

~~— round the stem width to the width of an integral number of fine cells; and~~

~~— move the stem with rounded width a minimum distance so that at least one of the stem edges aligns with a parallel coarse cell edge.~~

27. (Original) The product of claim 25, further comprising instructions to:

process the stem in accordance with a unbiased-stems policy, including instructions to:

round the stem width to the width of an integral number of fine cells;

determine a minimum number of coarse cells that can be spanned by the rounded width of the stem; and

determine whether the stem spans more than the minimum number of coarse cells and, if it does, move the stem a minimum distance so that at least one of the stem edges aligns with a parallel coarse cell edge.

28. (Original) The product of claim 25, wherein the set of policies comprises both a black-edge policy and an unbiased-stems policy.

29. (Original) The product of claim 28, wherein the set of policies further comprises a hard-edge policy and a soft-edge policy.

30. (Original) The product of claim 25, wherein the policy is specifically selected for vertical stems or horizontal stems.

31. (Original) The product of claim 25, wherein the policy is selected for both vertical stems and horizontal stems.

32. (Original) The product of claim 25, further comprising:

selecting a first policy for vertical stems and a different second policy for horizontal stem

33. (Previously presented) The system of claim 6, wherein the means for performing an unbiased-stems policy comprise:

means for rounding the stem width to the width of an integral number of fine cells;

means for determining a minimum number of coarse cells that can be spanned by the rounded width of the stem; and

means for determining whether the stem spans more than the minimum number of coarse cells and, if it does, for moving the stem a minimum distance so that at least one of the stem hint edges aligns with a parallel coarse cell edge.

34. (Previously presented) The product of claim 23, wherein instructions operable to perform an unbiased-stems hinted stem placement policy include instructions operable to:

round the stem width to the width of an integral number of fine cells;

determine a minimum number of coarse cells that can be spanned by the rounded width of the stem; and

determine whether the stem spans more than the minimum number of coarse cells and, if it does, move the stem a minimum distance so that at least one of the stem hint edges aligns with a parallel coarse cell edge.

35. (Previously presented) A method for rendering a character for display in grayscale on a grayscale output device, comprising:

defining a coarse grid of cells, each coarse cell corresponding to an output device grayscale pixel, and a high-resolution grid of fine cells, the high-resolution grid being aligned with said coarse grid so that each coarse cell includes an integer number of undivided fine cells;

placing a character defined by a font program with reference to the coarse grid and fine grid, the character having a stem hinted with two parallel edges that is placed with reference to the grids when the character is so placed, the stem hint edges being separated by a stem width; and

processing the stem before rendering the character for output on the output device

including performing an unbiased-stems hinted stem placement policy, wherein the unbiased-stems policy considers stem spread when determining stem placement.

36. (Previously presented) The method of claim 35, wherein processing the stem before rendering the character further includes performing a black-edge hinted stem placement policy.

37. (Previously presented) The method of claim 35, wherein:  
the number of fine cells per coarse cell is determined by a single, client-selected grid ratio.

38. (Previously presented) The method of claim 35, wherein:  
the number of fine cells per coarse cell is based on the number of grayscale levels that can be produced by a pixel of the output device.

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39. (Currently amended) A method for rendering a character for display in grayscale on a grayscale output device, comprising:

defining a coarse grid of cells, each coarse cell corresponding to an output device grayscale pixel, and a high-resolution grid of fine cells, the high-resolution grid being aligned with said coarse grid so that each coarse cell includes an integer number of undivided fine cells, the grids defining edges of the cells;

placing a character defined by a font program with reference to the coarse grid and fine grid, the character having a stem hinted with two parallel edges that are placed with reference to the grids when the character is so placed, the stem hint edges being separated by a stem width; and

processing the stem before rendering the character for output on the output device, including performing a black-edge hinted stem placement policy, ~~where the black-edge policy considers stem width when determining stem placement, wherein performing a black-edge policy comprises:~~

rounding the stem width to the width of an integral number of fine cells;

determining the stem width; and

if the stem width is at least one coarse cell, moving the stem with rounded width a



minimum distance so that at least one of the stem hint edges aligns with a parallel coarse cell edge.

40. (Previously presented) The method of claim 39, further comprising,  
performing an unbiased-stems hinted stem placement policy.

41. (Currently Amended) The method of claim 39, wherein:

~~performing a black-edge-policy comprises:~~

~~rounding the stem width to the width of an integral number of fine cells;~~

~~determining the stem width;~~

~~if the stem width is at least one coarse cell, moving the stem with rounded width a minimum distance so that at least one of the stem hint edges aligns with a parallel coarse cell edge; and~~

~~if the stem width is less than one coarse cell, performing an unbiased stems policy;~~

~~and performing an unbiased-stems policy comprises:~~

~~rounding the stem width to the width of an integral number of fine cells;~~

~~determining a minimum number of coarse cells that can be spanned by the rounded width of the stem; and~~

~~determining whether the stem spans more than the minimum number of coarse cells and, if it does, moving the stem a minimum distance so that at least one of the stem hint edges aligns with a parallel coarse cell edge.~~

42. (Previously presented) The method of claim 39, wherein:

the number of fine cells per coarse cell is determined by a single, client-selected grid ratio.

43. (Previously presented) The method of claim 39, wherein:

the number of fine cells per coarse cell is based on the number of grayscale levels that can be produced by a pixel of the output device.

44. (Cancel) ~~The method of claim 13, further comprising processing the stem in accordance~~

~~with a black edge policy by:~~

- ~~—— rounding the stem width to the width of an integral number of fine cells;~~
- ~~—— determining the stem width;~~
- ~~—— if the stem width is at least one coarse cell, moving the stem with rounded width a minimum distance so that at least one of the stem edges aligns with a parallel coarse cell edge;~~
- ~~and~~
- ~~—— if the stem width is less than one coarse cell, processing the stem in accordance with the unbiased stems policy.~~

45. (Cancel) The product of claim 28, further comprising instructions to process the stem in accordance with a black edge policy, including instructions to:

- ~~—— round the stem width to the width of an integral number of fine cells;~~
- ~~—— determine the stem width;~~
- ~~—— if the stem width is at least one coarse cell, move the stem with rounded width a minimum distance so that at least one of the stem edges aligns with a parallel coarse cell edge;~~
- ~~and~~
- ~~—— if the stem width is less than one coarse cell, process the stem in accordance with the unbiased stems policy.~~

46. (New) The system of claim 1, the stem aligner means further comprising:  
means for, if the stem width is less than one coarse cell, performing an unbiased stems policy.

47. (New) The method of claim 10, wherein, processing the stem in accordance with the black-edge policy further includes:

if the stem width is less than one coarse cell, performing an unbiased stems policy.

48. (New) The computer program product of claim 18, wherein instructions to perform a black-edge hinted stem placement policy further comprise instructions to:

if the stem width is less than one coarse cell, perform an unbiased stems policy.

49. (New) The computer program product of claim 25, wherein instructions to process the

stem in accordance with a black-edge policy further include instructions to:

if the stem width is less than one coarse cell, perform an unbiased stems policy.

50. (New) The method of claim 39, wherein performing a black-edge policy further comprises:

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if the stem width is less than one coarse cell, performing an unbiased stems policy.

2. The following is an examiner's statement of reasons for allowance: None of the references, either singularly or in combination, teach or fairly suggest means for determining the stem width; and means for, if the stem width is at least one coarse grid cell, moving the stem with rounded width a minimum distance so that at least one of the stem hint edges aligns with a parallel coarse cell edge as recited in independent claims 1, 10, 18, 25, and 39 or wherein the unbiased-stems policy considers stem spread when determining stem placement as recited in independent claims 6, 23, and 35.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. ~~Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."~~

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Linzy McCartney** whose telephone number is **(703) 605-0745**. The examiner can normally be reached on Mon-Friday (8:00AM-5:30PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Mark Zimmerman**, can be reached at **(703) 305-9798**.

**Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks  
Washington, D.C. 20231

**or faxed to:**

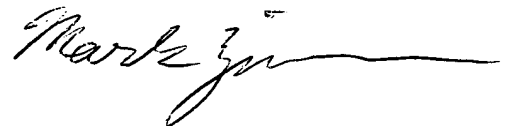
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**(703) 872-9314 (for Technology Center 2600 only)**

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive,  
Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding  
should be directed to the Technology Center 2600 Customer Service Office whose telephone  
number is (703) 306-0377.

ltm  
22 September 2003



MARK ZIMMERMAN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600